REMARKS

Filed concurrently with this paper is a Request for Continued Examination. Claims 1-9, 10-21, 23-24, and 26-34 are pending in the Application, of which claims 1, 11, 17, 19, 20, and 24 are in independent form. Claims 9, 21-22, and 25-26 are cancelled. Claims 1-8, 11-20, 23-24, and 27 are amended herein. Claims 28-34 are new.

Applicants believe that no new matter has been added through the amendments and additions to the claims.

All pending claims stand rejected in the Final Office Action mailed October 30, 2007 (the Office Action). Reconsideration of the pending claims is respectfully requested. For the Examiner's convenience, this response addresses the Office Action's objections in the same order they were raised.

I. Examiner Interview

Applicants wish to thank Examiner Nam V. Nguyen for the Examiner's interview on December 6, 2007. In the interview, the teachings of the prior art of record were discussed and, in particular, U.S. Patent No. 4,582,985 to Lofberg (hereafter "Lofberg"). In addition, several potential claim amendments to distinguish the claimed subject matter from the prior art were discussed.

II. Objections to the Claims under 35 U.S.C. § 112

The Office Action objects to claim 25 as allegedly being indefinite for failing to provide a proper antecedent basis for "said biometric marker." Claim 25 has been cancelled herein, rendering the objection moot.

The Office Action also objects to claim 3 as allegedly being indefinite for failing to provide sufficient antecedent basis for "said biometric marker." Claim 3 does not recite "said biometric marker," but rather a "...biometric sensor further compris[ing] an activation sensor." *See* Claim 3. Antecedent basis for a "biometric sensor" is provided in independent claim 1, from which claim 3 depends.

III. Amendments to the Claims

Claim 1 has been amended herein to recite in part:

> "…a biometric sensor configured to obtain an internal, sub-dermal physiological characteristic of a user from which an internal, sub-dermal biometric marker of said user may be determined..." Emphasis added.

Claims 2, 4, 11-15, 17, 19, 20, 23, 24, and 27 as amended herein recite similar features.

With respect to obtaining an internal, sub-dermal physiological characteristic of a user from which an internal, sub-dermal biometric marker is determined, the specification teaches that:

> "A biometric marker, for the purposes of this invention, is a human internal physiological characteristic, or biologically active feature, which, preferably, is unique to each individual member of the human race. The biometric markers of the present invention are not merely measurements of superficial anatomical structure, but instead utilize or alternatively include measurements of physiological traits of the various system of the human body and/or are histological traits…. The device scans a selected body part or biological feature of the user, taking an internal biometric measurement or recording internal biometric data from the same." Pg. 6 lines 24 to Pg. 7 line 5; emphasis added.

As such, the specification teaches measuring an internal, sub-dermal physiological characteristic of a human and determining an internal, sub-dermal biometric marker using the measurement.

Claim 1 has been further amended herein to recite in part:

> "…wherein said device is configured to measure said internal, sub-dermal physiological characteristic of said user using said biometric sensor, to determine an internal, sub-dermal biometric marker of said user therefrom, and to authenticate said user if said internal, sub-dermal biometric marker corresponds to said biometric profile of said authorized user of said device." Emphasis added.

Claims 4, 11, 12, 13, 17, 19, 20, 23, and 24 as amended herein recite similar features.

Regarding authenticating a user using an internal, sub-dermal biometric marker, the specification teaches:

> "The memory module … begins an authentication process of comparing an internal biometric marker, or markers, of the user with the biometric marker, or markers, of the authorized users stored in the memory module. The characteristics of the electrical signal represent the internal biometric marker, or markers, which the biometric sensor

> obtains from the user. The memory module compares the electrical signal to a known biometric profile stored within the memory module. If the electrical signal is identical to the known biometric profile, the biometrically activated device has authenticated the user and allows access to the data stored within the memory module...." Pg. 11 lines 12-20; emphasis added.

Accordingly, the disclosure teaches authenticating an individual based on an internal, sub-dermal biometric marker of the individual determined from a measurement of an internal, sub-dermal physiological characteristic of the individual.

With respect to a biometric marker corresponding to, "an internal, non-volitional physiological process occurring within the user," recited in claims 2, 13, and 15 as amended herein, the specification teaches biometric markers based on "biologically active" features. *See* Pg. 6 line 26. In addition, the specification teaches the use of various biometric markers based on one or more non-volitional, physiological processes. For example, the specification teaches that:

> "Some of the internal biometric markers which may be measured or determined from the biometric sensor include, but are not limited to, bone density, electromagnetic waves, cardiac rhythms, diacrotic notch readings, blood oxygen levels, capillary density, glucose levels, hematocrit levels, or sub-dermal layer analysis. Other biometric markers, such as bio-electric signals, resistance, impedance, capacitance, or other detectable electrical signals emanating from the body may also be detected by the sensor and used or combined with the feedback to the receiver to create a biometric profile of the user." Pg., 9 line 26 – Pg. 10 line 5; emphasis added.

Claim 28 recites in part, "...wherein said biometric sensor is configured to measure a plurality of different, internal, sub-dermal physiological characteristics of said user." Emphasis added. Claims 29-34 as amended herein recite related features.

The specification teaches the use of multiple biometric markers for authentication. For example, the disclosure teaches that the biometrically activated devices disclosed therein may be secured using, "[an] internal biometric marker or combination of markers..." Pg. 8 lines 4-5; emphasis added. As such, the disclosure teaches a sensor capable of measuring a plurality of different, internal, sub-dermal physiological characteristics, "the present invention comprises a sensor for sensing or determining certain internal biometric markers of a user in communication with a memory module for storing biometric data or biometric profiles of a

user or users corresponding to the internal biometric markers obtained by the sensor." Pg. 9 lines 7-9.

New claim 30 recites in part, "...wherein said biometric sensor is configured to prevent identification of which one of said plurality of different internal, sub-dermal physiological characteristics is selected and measured by said biometric sensor." Claim 33 as amended herein recites a similar feature. New claim 31 recites:

> "...measure[ing] a plurality of different internal, sub-dermal physiological characteristics of said user using said biometric sensor, to derive a plurality of internal, sub-dermal biometric markers of said user from said plurality of measurements, and to authenticate said user if each of said plurality of biometric markers corresponds to said biometric profile of an authorized user of said device." Emphasis added.

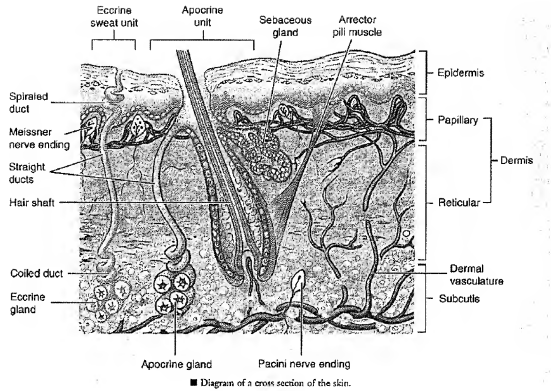
New claim 34 recites similar features.

Regarding claims 30, 31, 33, and 34, the specification teaches the use of multiple internal, sub-dermal characteristics. The disclosure also teaches that a user of the device may not able to determine which biometric markers are used to authenticate a user in a particular authentication process, rendering the biometric authentication device difficult or impossible to reverse engineer:

> "Without knowledge of the specific internal biometric marker or markers scanned by the biometrically activated device, a biometric profile cannot be reverse engineered or reconstructed so as to activate the biometrically activated device. In other words, the biometrically activated device may scan a user for numerous unique biometric markers, however, without knowing which marker is compared within the memory module, reverse engineering is virtually impossible." Pg. 8 lines 7-14; emphasis added.

Claims 1, 4, 11, 12, 14, 17, 19, 20, 23, 24, 27-29, 31, and 34 recite the term "sub-dermal." This term was discussed in the Examiner's Interview as potentially one way to distinguish the biometrics recited in the claims from other, external characteristics, such as fingerprints.

Regarding the term "sub-dermal," the term "dermal" is defined as "pertaining to the dermis." Dorland's Illustrated Medical Dictionary 500 (31st Edition, 2007). The dermis is defined as " the layer of the skin deep to the epidermis, consisting of a dense bed of vascular connective issue; it is divided into a papillary layer (TA, stratum papillare) and a reticular layer (TA, stratum reticulare)..." Id. at 506. Dorland's Illustrated Medical Dictionary provides a diagram of the skin showing the dermal layer. This diagram is replicated below:



Dorland's Illustrated Medical Dictionary Pg. 1748 (cross section of the skin)

Note that in the cross section of the skin, the dermis (dermal layer) is shown as below the epidermis. As such, the dermis cannot include any epidermal features, such as finger prints or the like since an internal, sub-dermal physiological characteristic excludes any epidermal characteristics (*e.g.,* fingerprints).

For example, a fingerprint is defined as, "[a]n impression of the inked bulb of the distal phalanx of a finger, showing the configuration of the surface ridges, used as means of identification…" Stedman's Medical Dictionary 731 (28th Edition, 2008); emphasis added. Since a fingerprint corresponds to surface ridges on the skin, specifically the epidermis, a sub-dermal characteristic would inherently exclude a fingerprint; this is because the dermis is below the epidermis layer of the skin. *See* Illustration above. As such, a sub-dermal characteristic necessarily excludes fingerprints or other, external skin features.

With respect to internal, sub-dermal physiological characteristics, the specification teaches the use of such characteristics in biometric authentication. For example, the disclosure states:

> "The biometric sensor is configured to determine specific unique internal biometric markers of a user. In a preferred embodiment of the invention, the sensor includes an emitter and a receiver. The emitter emits light or another form of energy which is partially absorbed and partially reflected by a portion of flesh of a user. Such light or energy may include, but is not limited to, ultrasonic energy, infra red light, near infra red light, ultra violet light, specific wavelength-visible or nonvisible light, white light, or electrical signals. The receiver collects those portions of light or energy that are reflected from the user. Based upon the light or energy reflected, data relating to internal biometric markers may be determined and a biometric profile of the user may be constructed. Some of the internal biometric markers which may be measured or determined from the biometric sensor include, but are not limited to, bone density, electromagnetic waves, cardiac rhythms, diacrotic notch readings, blood oxygen levels, capillary density, glucose levels, hematocrit levels, or sub-dermal layer analysis…." Pg. 9 line 18 – Pg. 10 line 2; emphasis added.

Each of the characteristics listed above (bone density, cardiac rhythms, etc.) are characteristics occurring below the dermal layer of skin.

In addition, the disclosure teaches that the biometric sensor may be configured to penetrate a user's epidermis (*e.g.,* enter the sub-dermal layer), "[a] preferred embodiment of the invention utilizes an infra red LED, which emits sufficient infra red light to penetrate the epidermal layer of skin of a user." Pg. 13 lines 4-5; emphasis added.

Claim 9 has been amended to recite, "wherein said emitter emits ultrasonic energy." The specification teaches the use of an ultrasonic energy emitter:

> "The biometric sensor is configured to determine specific unique internal biometric markers of a user. In a preferred embodiment of the invention, the sensor includes an emitter and a receiver. The emitter emits light or another form of energy which is partially absorbed and partially reflected by a portion of flesh of a user. Such light or energy may include, but is not limited to, ultrasonic energy, infra red light, near infra red light, ultra violet light, specific wavelength-visible or nonvisible light, white light, or electrical signals…" Pg. 9 lines 18 –23; emphasis added.

IV. Rejection of the Claims under 35 U.S.C. § 102

The Office Action rejects claims 1-3, 5-13, 14, 16, and 20-26 under 35 U.S.C. § 102(b) as being anticipated by U.S. Pat. No. 4,582,985 to Lofberg ("Lofberg"). A claim may be rejected under § 102(b), "only if each and every element as set forth in the claim is found,

either expressly or inherently, in a single prior art reference." Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628 (Fed. Cir. 1987); emphasis added; also see MPEP § 2131. Since Lofberg does not teach or suggest at least one of the elements of Claims 1-3, 5-13, 14, 16, and 20-25, Applicants respectfully traverse this rejection.

A. Lofberg does not Teach or Suggest Measuring an Internal, Sub-Dermal Physiological Characteristic of a User nor Determining an Internal, Sub-Dermal Biometric Marker Using Such a Measurement

The Office Action purports that Lofberg teaches an internal biometric characteristic since it obtains a heat transmission from the finger by a sensing device ("Lofberg discloses a biometric sensor configured to detect an internal biometric characteristic" Office Action Pg. 3 ¶ 3). However, notwithstanding whether detecting "heat" is an internal, sub-dermal physiological characteristic, the resulting biometric marker (*e.g.,* the fingerprint) clearly is not an internal, sub-dermal physiological characteristic. The Office Action confuses the means for measuring the biometric marker with the nature of the biometric marker itself. Regardless of how Lofberg measures the fingerprint, the fact remains that the resulting biometric marker that is compared and forms a basis for the Lofberg authentication is a fingerprint, which, of course, is an external biometric characteristic of an individual.

Moreover, the Application's definition of "internal" and "external" biometrics supports this position. Indeed, the Application explicitly refers to a fingerprint as being an external biometric characteristic; "[f]or the most part, ... biometric markers like the fingerprint, are external physiological traits or characteristics..." Pg. 5 lines 5-6; emphasis added. In contrast, the Application teaches, and the claims recite, internal, sub-dermal characteristics and biometric markers, "[t]he present invention provides apparatus processes which utilize unique internal human biometrics to verify the identity of the user..." Pg. 6 lines 17-18; emphasis added. Of course, a characteristic and/or biometric marker cannot simultaneously be both internal and external, these terms are mutually exclusive. In this way, the Application specifically precludes fingerprints as internal biometric characteristics.

In direct contrast, the claims as amended herein recite not only measuring an internal, sub-dermal physiological characteristic of a user but also using said measurement to determine an internal, sub-dermal biometric marker that itself corresponds to an internal, sub-

dermal marker of the user. Accordingly, even *assuming arguendo* that Lofberg could be construed as measuring an internal, sub-dermal physiological characteristic of a user – the corresponding biometric marker itself (the fingerprint) cannot be construed as an internal, sub-dermal biometric marker as recited in claim 1. Claim 1 as amended herein recites in part:

> "...a biometric sensor configured to obtain an internal, sub-dermal physiological characteristic of a user from which an, internal, sub-dermal biometric marker of said user may be determined..." Emphasis added.

Claims 11, 12, 17, 19, and 20 recite similar biometric sensors.

Claim 1 has also been amended herein to recite:

> "wherein the device is configured to measure an internal, sub-dermal physiological characteristic of an individual using said biometric sensor, to determine an internal, sub-dermal biometric marker of said user therefrom, and to authenticate said user if said internal, sub-dermal biometric marker corresponds to said biometric profile of an authorized user of the device." Emphasis added.

Claims 12, 17, 19, and 20 recite a similar configuration of the device to authenticate an individual.

Claim 11 recites a method for authenticating an individual by:

> "emitting an energy signal toward said user using said energy emitter,
>
> detecting a returned energy signal from said user responsive to said emitted energy signal, wherein said returned energy signal comprises a measurement of an internal, sub-dermal physiological characteristic of said user,
>
> determining an internal, sub-dermal biometric marker of said user using said returned energy signal;
>
> authenticating said individual if said internal, sub-dermal biometric marker corresponds to said biometric profile of said authorized user of the device." Emphasis added.

Claim 23 recites:

> "...measuring an internal, sub-dermal physiological characteristic of said user;
>
> determining an internal, sub-dermal biometric marker of said user using said measurement;
>
> creating a user biometric profile comprising said internal, sub-dermal biometric marker;
>
> comparing said user biometric profile to a stored biometric profile, wherein said comparing comprises comparing said internal, sub-dermal biometric marker to said stored biometric profile; and
>
> activating the electrical device if said user biometric profile corresponds to said stored biometric profile." Emphasis added.

Claim 24 recites related features.

As shown in the claims as amended herein, not only is an internal, sub-dermal physiological characteristic of the user measured, but the resulting biometric marker determined from the measurement is an internal, sub-dermal biometric marker of the user – the biometric marker corresponds to an internal, sub-dermal trait of the user. As discussed above, even if the heat or electrical transfer discussed in Lofberg could be construed as an internal, sub-dermal physiological characteristic (which it cannot as will be discussed below), the resulting biometric marker (*i.e.,* the fingerprint pattern) does not correspond to an internal, sub-dermal physiological characteristic of the user as recited in the claims.

i. Heat Transfer Discussed in Lofberg is not an Internal, Sub-Dermal Characteristic as Recited in the Claims

As discussed above, Lofberg does not teach or suggest an internal, sub-dermal biometric marker. The Office Action has alleged that Lofberg's discussion of heat transfer teaches measuring an "internal" characteristic. However, Lofberg provides no such teaching. At column 7, Lofberg states that:

> "Reception of information from the finger tip pattern may be obtained by the use of the heat transmission from the finger to a sensing device comprising a thermosensitive element. Then the finger print lines can be distinguished because transmission of heat from a finger print line to a sensing element is greater than the heat transmission from the interval between two finger print lines to a sensing element..." Lofberg col. 7 lines 8-15.

Here Lofberg explicitly states that it is measuring an external, non sub-dermal, characteristic – a "finger tip pattern." The external nature of the measurement is exemplified by Lofberg's statement that, "…transmission of heat from a finger print line to a sensing element is greater than the heat transmission from the internal between finger print lines to a sensing element." As such, Lofberg explicitly relies on the external structure of the user's fingerprint to make the measurement. Therefore, not only does Lofberg not teach or suggest an internal, sub-dermal biometric marker– but the heat transfer measurement discussed therein, is not a measurement of an internal, sub-dermal characteristic of the individual. Rather, the heat transfer measurement explicitly relies on the external structure of the fingerprint to provide a measurement. As discussed above, the fingerprint on the epidermis is not an internal, sub-dermal characteristic.

ii. Optical Sensing Discussed in Lofberg is not an Internal, Sub-Dermal Characteristic as Recited in the Claims

The Office Action purports that the "optical type" sensing discussed in Lofberg teaches or suggests measuring an biometric marker as recited in the claims. However, Lofberg provides no such teaching or suggestion. At column 7, Lofberg states:

> "The sensing elements may also be of an optical type utilizing the fact that reflected light from an illuminated finger tip comprises information about the finger print line pattern. This is based on the fact that reflected light from a given sensing point varies with the position of the point within the pattern. Thus, the amount of reflected light from a sensing point which falls in the middle of a finger print line is greater than the amount of reflected light from a sensing point which falls on the edge of a finger print line…." Lofberg col. 7 lines 49-58.

Again, Lofberg discusses measurement of an external characteristic. Lofberg explicitly states that light is to illuminate a finger tip to thereby provide information about the fingerprint line. This is external structure. Illumination of a fingertip cannot be construed as measuring an internal, sub-dermal physiological characteristic of an individual. As discussed above, the dermis is below the portion of skin comprising the fingerprint. As such, any measurement of the fingerprint is necessarily non sub-dermal.

B. Lofberg does not Teach or Suggest Authenticating a user Based on a Biometric Marker Corresponding to an Internal, Sub-Dermal Physiological Characteristic and/or a Biometric Profile Comprising a Recited Biometric Marker

As discussed above, Lofberg fails to teach or suggest measuring an internal, sub-dermal physiological characteristic of a user, and/or determining an internal, sub-dermal biometric marker as recited in the claims. In addition, Lofberg fails to teach or suggest authenticating a user based on such a measurement and/or biometric marker. Similarly, Lofberg fails to teach or suggest a biometric profile of a user capable of comparing a biometric marker as recited in the claims. For example, claim 1 as amended herein recites in part:

> "...wherein said device is configured to measure said internal, sub-dermal physiological characteristic of said user using said biometric sensor, to determine an internal, sub-dermal biometric marker of said user therefrom, and to authenticate said user if said internal, sub-dermal biometric marker corresponds to said biometric profile of said authorized user of said device." Emphasis added.

Independent claims 11, 17, 19, 20, and 24 as amended herein recite related features.

Since Lofberg fails to teach or suggest the recited measurement, biometric marker, and/or biometric profile, Lofberg cannot be construed as teaching or suggesting authentication based on the recited measurements, biometric markers, and/or biometric profiles.

C. Lofberg does not Anticipate Claims 1-3, 5-13, 14, 16, and 20, or 24 as Amended Herein

As discussed above, Lofberg fails to teach or suggest at least: measuring an internal, sub-dermal characteristic of an individual; an internal, sub-dermal biometric marker; and/or authenticating a user by comparing an internal, sub-dermal biometric marker to a biometric profile. Therefore, Applicants respectfully traverse the rejection of these claims since Lofberg fails to "teach each and every element as set forth in the claims." *See* Verdegall Bros. v. Union Oil Co. of California; also see MPEP § 2131.

V. Rejection of the Claims under 35 U.S.C. § 103

The Office Action rejects claims 4 and 15 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lofberg in view of U.S. Pat. No. 5,180,901 to Hiramatsu (hereafter Hiramatsu).

The Office Action rejects claims 17-18 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lofberg in view of U.S. Pat. No. 4,614,861 to Pavlov et al. (hereafter Pavlov).

The Office Action rejects claim 19 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Pat. No. 4,582,985 to Schmitt et al. (hereafter Schmitt) in view of Lofberg.

The Office Action rejects claim 27 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Lofberg in view of U.S. Pat. No. 5,974,337 to Kaffka et al. (hereafter Kaffka).

Each of these rejections is discussed below.

To support a *prima facie* case of obviousness, the Office Action must offer a "clear articulation of the reason(s) why the claimed invention would have been obvious." KSR Intl. Co. v. Teleflex Inc., 127 S. Ct. 1727 (2007); *also see* MPEP § 2143. The analysis supporting the rejection should be made explicit. *See* MPEP § 2143. The prior art references must be considered in their entirety (*i.e.,* as a whole) including portions that would lead away from the claims. *See* Panduit v. Dennison, 810 F.2d 1561 at 1568; citing W.L.Gore & Associates, Inc. v. Garlock, Inc., 721 F.2d 1540 at 1550. Any rejection under § 103 must consider all the words in the claim. *See* In re Wilson, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970); *also see* MPEP § 2143.03. Therefore, the cited prior art must teach or suggest all the claim limitations. *See* In Re Royka 490 F.2d 981 (CCPA 1974).

A. Rejection of Claims 4 and 15 under Lofberg and Hiramatsu

Applicants respectfully traverse the rejection of claims 4 and 15 since, even in combination, Lofberg and Hiramatsu fail to consider all the words of the claims as amended herein (the references fail to teach or suggest all the claim limitations).

The Office Action purports that Hiramatsu discloses an "analog/digital converter and authenticity detecting circuit" to convert a biometric signal. Office Action Pg. 10 ¶ 4.

Notwithstanding Hiramatsu's purported teachings, neither reference teaches at least: measuring an internal, sub-dermal characteristic of the individual; an internal, sub-dermal biometric marker; and/or authenticating the individual by comparing an internal, sub-dermal biometric marker to a biometric profile.

Moreover, claim 15 has been amended herein to recite, "...wherein said emitter emits electromagnetic radiation of a wavelength and energy level to measure an internal, non-volitional physiological process occurring within a human." Emphasis added. As discussed above, Lofberg does not teach or suggest detecting an internal, sub-dermal characteristic, much less an internal, non-volitional physiological process occurring within a user.

As such, Applicants respectfully traverse the rejection of claims 4 and 15 since, even in combination, Lofberg and Hiramatsu fail to consider all the words of these claims.

B. Rejection of Claims 17-18 under Lofberg and Pavlov

The Office Action purports that Pavlov teaches a data communicator embedded within a card in communication with a memory module for communicating data to an external source.

Claim 17 has been amended herein to recite in part:

> "a biometric sensor integrally contained within said card, said biometric sensor configured to obtain a measurement of an internal, sub-dermal physiological characteristic of a user from which an internal, sub-dermal biometric marker of said user may be determined ...
>
> wherein said planar card is configured to measure said internal, sub-dermal physiological characteristic of said user using said biometric sensor, to determine an internal, sub-dermal biometric marker therefrom, and to authenticate said individual if said internal, sub-dermal biometric marker corresponds to said biometric profile of an authorized user of said planar card." Emphasis added.

In addition, Claim 18 recites, "...a data screen embedded on a surface of [the] card ... wherein [the] card is configured to activate said data screen responsive to authentication of said individual." Emphasis added.

Notwithstanding Pavlov's purported teachings, neither reference teaches at least: measuring an internal, sub-dermal characteristic of the individual; an internal, sub-dermal biometric marker; and authenticating the individual by comparing an internal, sub-dermal

biometric marker to a biometric profile. In addition, the Office Action does not purport that Pavlov teaches or suggests a display screen on a card that is "activate[d] responsive to authentication of [an] individual" as recited in claim 18.

As such, Applicants respectfully traverse the rejection of claims 4 and 15 since, even in combination, Lofberg and Hiramatsu fail to consider all the words of these claims.

C. Rejection of claim 19 under Schmitt and Lofberg

The Office Action purports that Schmitt teaches a biometrically activated telecommunication device having an activated state and an inactivated state controlled by an activation sensor. Office Action Pg. 12 ¶¶ 3-4. The Office Action combines Schmitt with Lofberg, which it purports teaches "an energy transmitter and an energy receiver." Office Action Pg. 12 ¶ 7.

Claim 19 has been amended herein to recite in part:

> "a biometric sensor embedded within said cellular phone configured to measure an internal, sub-dermal physiological characteristic of a user from which a biometric marker of said user may be determined, wherein said biometric marker corresponds to an internal, sub-dermal physiological characteristic of said user..." Emphasis added.

Notwithstanding the purported teachings of Schmitt, neither reference teaches at least: measuring an internal, sub-dermal characteristic of an individual; an internal, sub-dermal biometric marker; and authenticating the individual by comparing an internal, sub-dermal biometric marker to a biometric profile.

As such, Applicants respectfully traverse the rejection of claim 19 since, even in combination, Schmitt and Lofberg fail to consider all the words of claim 19.

D. Rejection of claim 27 under Lofberg and Kaffka

The Office Action purports that Kaffka teaches an "internal physiological characteristic" including oxygen content in blood in order to avoid infection with total security. Office Action Pg. 13 ¶ 4. The Office Action purports that it would have been obvious to a person of ordinary skill in the art to recognize using a biometric sensor to measure oxygen content in blood taught by Kaffka with Lofberg. Office Action Pg. 13 ¶ 5.

Applicants respectfully traverse the rejection of claim 27 for at least the following reasons: even in combination, Lofberg and Kaffka fail to consider all the words of claim 27; Lofberg and Kaffka are not analogous art; the Office Action fails to offer a clear articulation of the reasons claim 27 is purportedly obvious; and/or there is no motivation to combine Lofberg and Kaffka.

1. Even in Combination, Lofberg and Kaffka Fail to Consider All the Words of Claim 27

The Office Action purports that Kaffka teaches a measurement of a "blood oxygen level" as recited in claim 27. However, notwithstanding the purported teachings of Kaffka; this is not what is claimed.

Claim 27 depends on claim 1 which recites in part:

> "a biometric sensor configured to obtain an internal, sub-dermal physiological characteristic of a user from which an internal, sub-dermal biometric marker of said user may be determined…
>
> wherein said device is configured to measure an internal, sub-dermal physiological characteristic of said user using said biometric sensor, to determine an internal, sub-dermal biometric marker of said user therefrom, and to authenticate said user if said internal, sub-dermal biometric marker corresponds to said biometric profile of said authorized user of the device." Emphasis added.

In addition, claim 27 recites, "…wherein said biometric marker corresponds to … a … blood oxygen level."

Claim 27 does not merely recite measuring or obtaining an blood oxygen level generally. Rather, claim 27 also recites "determin[ing] an internal, sub-dermal biometric marker [blood oxygen level] of [the] user [from the measurement of the internal, sub-dermal physiological characteristic]." As such, even *assuming arguendo* that Kaffka teaches or suggests measuring a blood oxygen level, Kaffka does not teach or suggest determining an internal, sub-dermal biometric marker using the measurement, nor does Kaffka teach or suggest authenticating an individual based on such a biometric marker.

Similarly, Lofberg does not teach or suggest obtaining a biometric marker related to a blood oxygen level. As discussed above, Lofberg exclusively discusses identification based on a fingerprint pattern. As such, even if Lofberg were to be combined with the "blood

oxygen level" measurement purportedly discussed in Kaffka, the combination would still fail to teach or suggest determining an internal, sub-dermal biometric marker using the measurement or authenticating an individual using the internal, sub-dermal biometric marker.

Therefore, Applicants respectfully traverse the rejection of claim 27 since, even in combination, Lofberg and Kaffka fail to consider all the words of the claim.

2. Lofberg and Kaffka are not Analogous Art

In order to rely on a reference under 35 U.S.C. § 103, it must be analogous art. *See* MPEP § 2141.01(a). Under the correct analysis, any need or problem known in the field of endeavor at the time of the invention can provide a reason for combining the elements in the manner claimed. KSR Intl.; *also see* MPEP § 2143.

The Office Action fails to establish that Lofberg and Kaffka are analogous art. The Office Action merely states that, "[i]n the same field of endeavor of physiological biometric operation, Kaffka et al. disclose [sic] the internal physiological characteristic includes a oxygen content in blood (*i.e.,* a blood oxygen level) on order to avoid infection with total security." Office Action Pg. 13 ¶ 4; emphasis added.

However, Kaffka is not in the same field of endeavor as Lofberg. Moreover, the Office Action misconstrues Kaffka. The statement regarding avoiding infection, "with total security" does not relate to biometric authentication security as in Lofberg, but rather (as will be discussed below) deals with prevention of infectious disease due to the non-invasive nature of the device discussed in Kaffka. This is not "security of verification" as discussed in Lofberg. *See* Lofberg col. 12 lines 10-11.

i. Lofberg is Directed to a Secured Data Carrier

Lofberg discusses a personal security device (*i.e.,* data carrier). Lofberg states that the object of the "data carrier" discussed therein is to obtain user identification information to remove the need for "memorizing a secret code" since identification information is received from a finger tip pattern. Lofberg col. 3 lines 65-66; emphasis added. Lofberg states that it uses the finger tip pattern since it "is unique for each individual and thereby provides for a good identification security." Lofberg col. 3 line 66 – col. 4 line 2; emphasis added.

ii. Kaffka is Directed to a Medical Device

By Contrast, Kaffka purports to determine user blood characteristics, such as glucose, protine, albumin, creatinine, carbamide, cholesterol, triglyceride, cholinesterase, hemoglobin, etc. *See* Kaffka col. 1 lines 12-15. Kaffka is primarily directed to monitoring glucose levels in diabetes patients. Kaffka states that, "[m]easuring the glucose component [of the blood] is especially important because diabetes mellitus seems to be considered as a widespread disease." Kaffka col. 1 lines 16-18; emphasis added. Kaffka explains that, "[f]or treatment of diabetes mellitus, glucose content of the blood must be regularly monitored." Kaffka col. 1 lines 18-19; emphasis added.

Kaffka explains that traditional approaches to obtaining blood measurements typically required patients to obtain a blood sample, "[e]ither the patient pricks himself or somebody else." Kaffka col. 1 lines 39-40. With any invasive procedure, "sterility must be ensured." Kaffka col. 1 line 40.

Kaffka purports to address these issues (inaccurate measurements, requirements of pricking the skin) by providing a way of measuring blood composition, and especially, glucose, non-invasively. Kaffka col. 1 lines 47-49; emphasis added. Since the method is non-invasive (no pricking required), Kaffka states that "infection [may] be avoided with total security." Kaffka col. 1 line 56-57; emphasis added.

The "total security" discussed in Kaffka refers to security from infection resulting from pricking one's finger to obtain a blood sample. This clearly is not the "identification security" discussed in Lofberg. As discussed above, the "identification security" discussed in Lofberg refers to security from unauthorized access to a "data carrier" (*e.g.,* personal data of an individual). This has nothing to do with infection or any of the other issues addressed in Kaffka (*e.g.,* monitoring blood levels to manage diabetes or other health conditions).

Since Lofberg and Kaffka are directed to completely unrelated fields (Lofberg to data security and Kaffka to medical diagnosis and monitoring), and the Office Action has failed to show any need or problem in either field motivating their combination, the references do not represent analogous art.

3. The Office Action Fails to Establish a Prima Facie Case of Obviousness

The Office Action has failed to clearly articulate the reasons the claimed subject matter would have been obvious at the time the invention was made. In KSR Intl., the Supreme Court held that a *prima facie* case of obviousness requires a "clear articulation" of the reason(s) why the claimed invention would have been obvious and that this reasoning should be made explicit.

The Office Action does not provide the required clear articulation. The Office Action merely states that Lofberg and Kaffka are in the "same field of endeavor" and that the support for this contention is Kaffka's discussion of obtaining a oxygen content in blood "in order to avoid infection with total security." Office Action Pg. 13 ¶ 4; emphasis added. As discussed above, the "security" from infection discussed in Kaffka is not security of a data carrier discussed in Lofberg.

The Office Action also purports that it would have been obvious to use the blood monitoring system discussed in Kaffka with the data carrier of Lofberg to "increase security and reliable communication of exchanging data." However, there is no indication in either reference that the combination would produce these purportedly obvious results. Kaffka provides absolutely no teaching or suggestion that the blood characteristics discussed therein could be used to provide security to a data carrier, much less be used to authenticate the identity of an individual. Instead, Kaffka exclusively discusses the use of blood characteristics for use in medical analysis and diagnosis. Authenticating an individual based on a characteristic of the individual's blood is a very different task than simply measuring a composition (*e.g.,* glucose level) in blood for the purpose of controlling a disease such as diabetes.

For its part, Lofberg is devoid of any teaching or suggestion of the use of any other biometric marker other than an individual's fingerprint.

Since the Office Action has failed clearly articulate the reasons the claims would have been obvious, Applicants respectfully traverse the rejection of Claim 27.

4. The Office Action fails to Provide a Valid Motivation to Combine Lofberg and Kaffka

The Office Action fails to articulate a valid motivation to combine the references. The Office Action purports that a motivation exists since Lofberg would desire "increased security" available through the Kaffka blood composition monitor. However, the Office Action fails to point to any indication that Kaffka would provide any such increase in security. Moreover, as discussed above, the security from infection discussed in Kaffka is not security from authorized use of a data carrier discussed in Lofberg.

In KSR Intl., the Court held that, "rejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness." KSR Intl.; emphasis added.

The Office Action fails requirement. The Office Action fails to point out any valid rational providing a motivation to combine Lofberg and Kaffka. In KSR Intl., several possible rationales providing a motivation to combine references have been identified. The Office Action has failed to provide a basis under any of these rationale. Each of the rationale discussed in KSR Intl. and MPEP § 2143 are discussed in turn below:

(A) Combining prior art elements according to known methods to yield predictable results;

The Office Action has not identified any known methods whereby a blood composition may be used to authenticate an identity of a user other than the Application itself. Moreover, the Office Action fails to point out how this purportedly "known" method would provide accurate identification of an individual (*e.g.*, the Office Action can show no teaching in the art at the time the invention was made, suggesting that blood composition may provide a biometric marker capable of reliably identifying and/or authenticating an individual). Therefore, this rational finds no support in the Office Action.

(B) Simple substitution of one known element for another to obtain predictable results;

The Office Action has not established that a blood composition represents a known method of obtaining a biometric marker. Moreover, the Office Action has not shown that such combination would yield predictable results. The only conceivable support for such predictable results come from the Office Action misinterpretation of Kaffka's purported "total security" from infection. Clearly, such "total security from infection" cannot be construed as "security" of a data carrier discussed in Lofberg.

(C) Use of known technique to improve similar devices (methods, or products) in the same way;

The Office Action has not established that Kaffka represents use of a known technique to improve a similar device in the same way. As discussed above, Kaffka, is not a "similar device." Kaffka is a blood composition analysis device for use in medical diagnosis and treatment, whereas Lofberg is directed to securing a "data carrier" using a finger print. Moreover, Kaffka could not be used "the same way" to provide data carrier security. Kaffka does not discuss obtaining a blood characteristic capable of identifying a user (*e.g.*, authenticating a user). As such, it clearly could not be used in the "same way" to provide such identification features to Lofberg.

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

As discussed above, the Office Action has not shown that analyzing blood to obtain a biometric marker a "known technique." The only source for such knowledge is from the Application itself.

(E) "Obvious to try" – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

As discussed above, neither Kaffka nor Lofberg teaches or suggests that a blood characteristic-based biometric marker would be suitable for use as a basis for authentication. As such, the purported combination of the blood composition monitor of Kaffka and the data

monitor would not have been obvious to try, nor would it provide a reasonable expectation of success.

> *(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations are predictable to one of ordinary skill in the art;*

As discussed above, Kaffka is not in the same field of endeavor as Lofberg. Accordingly, the market forces acting on Kaffka towards more effective and non-invasive methods of measuring blood characteristic for patients (e.g., diabetes patients) would not similarly act on Lofberg. Furthermore, the Office Action has failed to demonstrate how such market forces would motivate one skilled in the art to combine Lofberg with Kaffka. Moreover, the single purported suggestion motivating the combination of Lofberg and Kaffka mentioned in the Office Action (the "security from infection" statement in Kaffka) is misconstrued by the Office Action.

> *(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention*

As discussed above, the Office Action fails to identify any valid teaching or suggestion in the art motivating the combination of Lofberg and Kaffka. The only argument made in the Office Action is based upon the Office Action's misinterpretation of Kaffka's statement regarding providing security against infection.

Since the Office Action has failed to provide any plausible rationale supporting a motivation to combine Lofberg and Kaffka, Applicants respectfully traverse the rejection of claim 27.

5. Claim 27 Represents Patentable Subject Matter

As demonstrated above, the Office Action has failed to establish a *prima facie* case of obviousness of claim 27 for at least the following reasons: even in combination, Lofberg and Kaffka fail to consider all the words of claim 27; Lofberg and Kaffka are not analogous art; the Office Action fails to offer a clear articulation of the reasons

claim 27 is purportedly obvious; and/or there is no motivation to combine Lofberg and Kaffka. Therefore, Applicants respectfully traverse the rejection of claim 27.

VI. General Considerations

By the remarks provided herein, Applicants have addressed all outstanding issues presented in the Office Action. Applicants note that the remarks presented herein have been made merely to clarify the claimed invention from elements purported by the Office Action to be taught by the cited references. Such remarks should not be construed as acquiescence, on the part of Applicants, as to the purported teachings or prior art status of the cited references, nor as to the characterization of the cited references advanced in the Office Action. Accordingly, Applicants reserve the right to challenge the purported teachings and prior art status of the cited references at an appropriate time.

CONCLUSION

For the reasons discussed above, Applicants submit that the claims are in proper condition for allowance, and a Notice of Allowance is respectfully requested. If the Examiner notes any further matters that may be resolved by a telephone interview, the Examiner is encouraged to contact John Thompson by telephone at (801) 578-6994.

DATED this 28th day of April, 2008.

Respectfully submitted,

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